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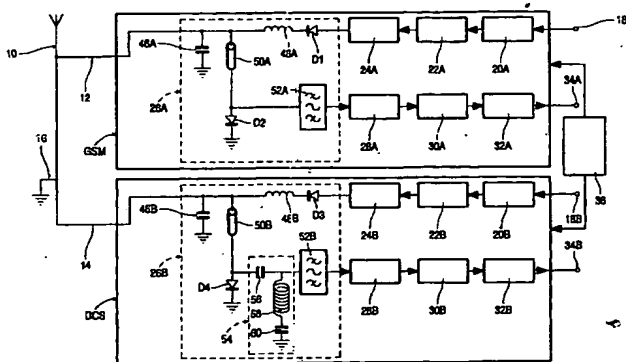
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(54) Title: IMPROVEMENTS IN OR RELATING TO WIRELESS TERMINALS



(57) Abstract: A wireless terminal having a dual band antenna arrangement which comprises a planar inverted-F antenna (10) having a first feed (12) for signals in a first, lower frequency band, for example the GSM band, a second feed (14) for signals in a second, higher frequency band, for example the DCS band, and a ground pin (16). A first coupling stage (26A) couples the transmit and receive paths of a first transceiver (GSM) to the first feed and a second coupling stage (26B) couples the transmit and receive paths of a second transceiver (DCS) to the second feed. Each of the first and second coupling stages comprise a quarter wavelength transmission line (50A, 50B) having a first end coupled to the respective transmit signal path and a second end coupled by band pass filter (52A, 52B) to the respective receive signal path. A first PIN diode (D1, D3) couples a transmit signal path to the first end of the respective quarter wavelength transmission line and to the respective feed (12, 14) and a second PIN diode (D2, D4) couples the second end of the respective quarter wavelength transmission line to ground. In operation when transmitting in one of the bands, the first and second PIN diodes of the relevant coupling stage are switched-on, whilst the PIN diodes in the other coupling stage are off and when in a receiving mode all the PIN diodes are off. The signal being received by one of the transceivers is reflected by the band pass filter in the coupling stage of the other transceiver.

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*For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.*

## INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER  
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Minimum documentation searched (classification system followed by classification symbols)  
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	EP 0 823 751 A (NOKIA MOBILE PHONES LTD) 11 February 1998 (1998-02-11) column 6, line 14-38; figure 5	1,5,6
Y	US 6 332 071 B1 (BRANDT PER-OLOF) 18 December 2001 (2001-12-18) the whole document	1,5,6
A	EP 1 187 357 A (HITACHI METALS LTD) 13 March 2002 (2002-03-13) page 1, line 19-23 page 9, line 14 -page 11, line 20; figures 15,17 page 2, line 18-48	1,5,6

☐ Further documents are listed in the continuation of box C.☒ Patent family members are listed in annex.

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